II. CLAIM AMENDMENTS

1-12. (Previously Cancelled)

13. (Currently Amended) A neuro-ventilatory efficiency computation method for monitoring/controlling a level of ventilatory assist produced by a ventilatory assistance system, comprising:

a) receiving a first signal representative of a subject's ~~inspiratory~~breathing effort; the first signal having a first amplitude;

b) receiving a second signal representative of a lung volume of the subject, the second signal having a second amplitude;

c) calculating a neuro-ventilatory efficiency representative parameter in relation to said first and second amplitudes at predetermined intervals; and

d) increasing or decreasing the ventilatory assist level depending on whether a present calculated value of the neuro-ventilatory efficiency representative parameter is higher or lower than a past calculated value of said neuro-ventilatory efficiency representative parameter by an amount exceeding a given threshold.

14. (Previously Presented) A neuro-ventilatory efficiency computation method as in claim 13, wherein calculating a neuro-ventilatory efficiency representative parameter comprises

calculating a ratio between said first and second amplitudes at predetermined time intervals.

15. (Previously Presented) A neuro-ventilatory efficiency computation method as in claim 13, wherein calculating a neuro-ventilatory efficiency representative parameter comprises calculating a ratio between said first and second amplitudes at intervals when one of said first and second amplitudes reaches a predetermined level.

16. (Previously Presented) A neuro-ventilatory efficiency computation method as in claim 13, wherein increasing or decreasing the ventilatory assist level comprises increasing the ventilatory assist level when said present calculated value of said neuro-ventilatory efficiency representative parameter is higher than said past calculated value of said neuro-ventilatory efficiency representative parameter by an amount exceeding the given threshold, and decreasing the ventilatory assist level when said present calculated value of said neuro-ventilatory efficiency representative parameter is lower than said past calculated value of said neuro-ventilatory efficiency representative parameter by an amount exceeding said given threshold.

17. (Previously Presented) A neuro-ventilatory efficiency computation method as in claim 13, wherein receiving the second signal representative of a lung volume comprises receiving a signal representative of a given lung volume.

18. (Currently Amended) A neuro-ventilatory efficiency computation method as in claim 13, wherein receiving the first signal representative of the subject's ~~inspiratory~~breathing effort comprises receiving a signal representative of a given level of ~~inspiratory~~breathing effort.

19. (Previously Presented) A neuro-ventilatory efficiency computation method as in claim 13, further comprising generating an alarm signal when said present calculated value of said neuro-ventilatory efficiency representative parameter is higher or lower than the past calculated value of said neuro-ventilatory efficiency representative parameter by an amount exceeding said given threshold.

20. (Previously Presented) A neuro-ventilatory efficiency computation method as in claim 13, comprising manually performing said increasing or decreasing of the ventilatory assist level.

21. (Currently Amended) A neuro-ventilatory efficiency computation method as in claim 13, comprising expressing the first signal representative of the subject's ~~inspiratory~~breathing effort as one of the following values: a mean of said first amplitude, a median of said first amplitude, and a peak of said first amplitude.

22. (Previously Presented) A neuro-ventilatory efficiency computation method as in claim 13, comprising expressing the second signal representative of a lung volume as one of the

following values: a mean of said second amplitude, a median of said second amplitude, and a peak of said second amplitude.

23. (Currently Amended) A neuro-ventilatory efficiency computation method as in claim 13, wherein receiving the first signal representative of ~~inspiratory~~breathing effort comprises receiving an electromyographic signal from at least one muscle of the subject.

24. (Currently Amended) A neuro-ventilatory efficiency computation device for monitoring/controlling a level of ventilatory assist produced by a ventilatory assistance system, comprising:

a) a first input for receiving a first signal representative of a subject's ~~inspiratory~~breathing effort; the first signal having a first amplitude;

b) a second input for receiving a second signal representative of a lung volume of the subject, the second signal having a second amplitude;

c) a calculator of a neuro-ventilatory efficiency representative parameter in relation to said first and second amplitudes at predetermined intervals; and

d) ~~a control~~controller dependent on whether a present calculated value of said neuro-ventilatory efficiency representative parameter is higher or lower than a past calculated value of said neuro-ventilatory efficiency representative parameter by an amount exceeding a given

threshold to increase or decrease the ventilator assist level.

25. (Currently Amended) A neuro-ventilatory efficiency computation device as in claim 24, wherein:

the calculator comprises a divider responsive to the first and second amplitudes for calculating a ratio between said first and second amplitudes at predetermined intervals;

the ~~control~~controller comprises:

a comparator responsive to the present calculated value and the past calculated value of said neuro-ventilatory efficiency representative parameter for producing a signal representative of a comparison between a present calculated value of said neuro-ventilatory efficiency representative parameter and a past calculated value of said neuro-ventilatory efficiency representative parameter;

an adder interposed between the comparator and the ventilatory assistance system for adding a preset increment to or subtracting a preset decrement from said ventilatory assist level when the comparison signal exceeds a given threshold.

26. (Previously Presented) A neuro-ventilatory efficiency computation device as in claim 24, wherein said calculator comprises means for calculating said neuro-ventilatory efficiency representative parameter at predetermined time intervals.

27. (Previously Presented) A neuro-ventilatory efficiency computation device as in claim 24, wherein said calculator comprises means for calculating said neuro-ventilatory efficiency representative parameter at intervals when one of said first and second amplitudes reach a predetermined level.

28. (Previously Presented) A neuro-ventilatory efficiency computation device as in claim 25, wherein said adder comprises means for adding said preset increment to said ventilatory assist level when said present calculated value of said neuro-ventilatory efficiency representative parameter is higher than said past calculated value of said neuro-ventilatory efficiency representative parameter by an amount exceeding said given threshold, and means for subtracting said preset decrement from said ventilatory assist level when said present calculated value of said neuro-ventilatory efficiency representative parameter is lower than said past calculated value of said neuro-ventilatory efficiency representative parameter by an amount exceeding said given threshold.

29. (Previously Presented) A neuro-ventilatory efficiency computation device as in claim 24, wherein the second signal representative of a lung volume is a signal representative of a given lung volume.

30. (Currently Amended) A neuro-ventilatory efficiency computation device as in claim 24, wherein the first signal representative of the subject's ~~inspiratory~~breathing effort is a

signal representative of a given level of ~~inspiratory~~breathing effort.

31. (Previously Presented) A neuro-ventilatory efficiency computation device as in claim 24, further comprising an alarm generator to produce an alarm signal when said present calculated value of said neuro-ventilatory efficiency representative parameter is higher or lower than the past calculated value of said neuro-ventilatory efficiency representative parameter by an amount exceeding said given threshold.

32. (Previously Presented) A neuro-ventilatory efficiency computation device as in claim 25, wherein said adder comprises a manual adjustment system to add said preset increment to or subtracting said preset decrement from said ventilatory assist level.

33. (Currently Amended) A neuro-ventilatory efficiency computation device as in claim 24, comprising means for expressing the first signal representative of the subject's ~~inspiratory~~breathing effort by means of one of the following values: a mean of said first amplitude, a median of said first amplitude, and a peak of said first amplitude.

34. (Previously Presented) A neuro-ventilatory efficiency computation device as in claim 24, further comprising means for expressing the second signal representative of a lung volume by means of one of the following values: a mean of said second

amplitude, a median of said second amplitude, and a peak of said second amplitude.

35. (Currently Amended) A neuro-ventilatory efficiency computation device as in claim 24, wherein the first signal representative of the subject's ~~inspiratory~~breathing effort is an electromyographic signal from at least one muscle of the subject.